

Design and Development of a Web-Based Multimedia Platform for the Promotion of LKP Karyaprima

Supiyandi^{1*}, Abil Alwi Prayoga²

^{1,2}Faculty of Computational Science and Digital Intelligence, Information Technology, Universitas Pembangunan Panca Budi, Medan, Indonesia

Author's Email: ^{1*}supiyandi.mkom@gmail.com, ²abilabil1752@gmail.com

Article Info

Article history:

Received July 1, 2026

Revised July 10, 2026

Accepted July 10, 2026

Keywords:

Web-based multimedia,
Promotional media,
ADDIE model,
Website usability,
Vocational training institution

ABSTRACT

Lembaga Kursus dan Pelatihan (LKP) Karyaprima, like many small-scale non-formal vocational training providers, relied on conventional promotional methods that limited its reach, interactivity, and the presentation of its training programs to prospective learners. This study aimed to design, develop, and evaluate a web-based multimedia platform to support the promotion of LKP Karyaprima. The Analysis, Design, Development, Implementation, and Evaluation (ADDIE) model was adopted as the research and development framework. Data were collected through interviews with institutional stakeholders, observation of existing promotional practices, documentation review, expert validation, and a usability evaluation combining the WebQual 4.0 instrument and the System Usability Scale (SUS). The resulting platform integrated an institutional profile, training-program descriptions, photo and video documentation, instructor and facility information, alumni testimonials, an online registration feature, and an administrative content-management module. Expert validation indicated that the platform met content- and media-feasibility criteria, while the usability evaluation indicated a favourable overall user experience across the usability, information-quality, and interaction-quality dimensions. The findings suggested that the platform had the potential to strengthen the promotional visibility and perceived attractiveness of LKP Karyaprima among prospective learners.

This work is licensed under a [CC BY-SA License](#).



Corresponding Author:

Supiyandi,
Faculty of Computational Science and Digital Intelligence, Information Technology,
Universitas Pembangunan Panca Budi, Medan
South Sumatra, Indonesia
Email: supiyandi.mkom@gmail.com

1. INTRODUCTION (10 PT)

Digital technology has fundamentally changed how educational and vocational training institutions communicate with prospective learners. Conventional promotional methods, such as printed brochures, banners, and word-of-mouth referrals, are increasingly limited in terms of audience reach, information accessibility, interactivity, and the richness with which institutional programs can be presented. Educational institutions therefore increasingly require digital promotional media that are informative, visually engaging, easily accessible, and responsive to the needs of prospective users.

Lembaga Kursus dan Pelatihan (LKP) Karyaprima, a non-formal vocational training institution, faces this challenge directly. As a small-scale training provider, LKP Karyaprima has depended on conventional

promotional channels that offer limited capacity to showcase its training programs, facilities, instructors, achievements, and registration procedures in an interactive and visually appealing manner. A web-based multimedia platform that combines text, photographs, video, animation, audio, and interactive navigation is expected to substantially improve the accessibility and attractiveness of the institution's promotional information.

The design of such a platform can be informed by several complementary theoretical perspectives. Mayer's Cognitive Theory of Multimedia Learning explains how users construct mental representations from combined verbal and pictorial information, and recent reviews have continued to refine and extend its design principles for reducing extraneous processing and managing essential processing [1]-[3]. Although the theory was developed primarily for learning contexts, its principles - relevance, coherence, segmenting, and dual coding - are equally applicable to the presentation of institutional and promotional information, helping designers avoid decorative or distracting multimedia elements. The Attention-Interest-Desire-Action (AIDA) model offers a complementary lens for organizing the promotional function of a website: attention is captured through an engaging homepage and visual identity, interest is generated through clear program information, desire is built through testimonials and achievements, and action is facilitated through registration or contact features. Empirical applications of the AIDA model in both traditional and AI-supported marketing contexts confirm its continued relevance for structuring promotional communication [4], [5].

Because a promotional website is also an information system, its acceptance and perceived usefulness can be examined through the Technology Acceptance Model (TAM), whose core constructs - perceived usefulness and perceived ease of use - have been widely applied to explain the adoption of social media and web-based tools in educational settings [6]-[8]. Complementarily, the DeLone and McLean Information Systems Success Model highlights system quality, information quality, and service quality as antecedents of use and user satisfaction, providing a structured basis for evaluating a promotional platform beyond mere technical functionality [9]. WebQual 4.0, which operationalizes usability, information quality, and service-interaction quality, has likewise been applied extensively to assess institutional and e-commerce websites [12], [18], [19], while the System Usability Scale (SUS) offers a compact, well-validated instrument for measuring perceived usability [11].

Despite the extensive literature on multimedia learning, website quality, and digital marketing, these strands are frequently examined separately. Studies on multimedia design principles seldom address institutional promotion, and studies on website usability or digital marketing rarely engage with a specific non-formal vocational training context [14], [20]. Consequently, LKP Karyaprima does not yet have an integrated web-based multimedia platform capable of presenting institutional and promotional information in a manner that is simultaneously interactive, accessible, and visually appealing, leaving prospective learners with limited means of obtaining complete information about the institution and its training programs.

The main research question addressed in this study was: how can an effective and user-friendly web-based multimedia platform be designed and developed to support the promotion of LKP Karyaprima? This question was elaborated into five specific questions concerning (1) the information and multimedia requirements of LKP Karyaprima and its prospective learners, (2) the design of the platform according to promotional needs, (3) the functionality, usability, information quality, and visual appeal of the developed platform, (4) users' perceptions of the platform's promotional effectiveness, and (5) the improvements required following expert and user evaluation. Correspondingly, the study aimed to (1) identify promotional information and multimedia requirements, (2) design and develop a web-based multimedia promotional platform, (3) integrate appropriate multimedia elements, (4) evaluate the platform in terms of functionality, usability, information quality, visual design, and user satisfaction, and (5) assess its potential to increase awareness of and interest in LKP Karyaprima's programs.

This study contributes to the literature by integrating multimedia design principles, website development practice, promotional communication theory, and usability evaluation within the specific and underexplored context of a non-formal vocational training institution, thereby extending prior work that has examined these strands in isolation [3], [14], [17], [20]. The remainder of this paper is organized as follows. Section 2 describes the research method, including the ADDIE-based research and development procedure, participants, data-collection techniques, and data-analysis approach. Section 3 presents the results of the design, development, and evaluation stages together with the corresponding discussion. Section 4 concludes the paper and outlines directions for future research.

2. RESEARCH METHOD

This study employed a Research and Development (R&D) approach based on the ADDIE model, comprising the Analysis, Design, Development, Implementation, and Evaluation stages [10]. The ADDIE model was selected because its iterative, feedback-driven structure is well suited to producing a technically functional and pedagogically sound multimedia product while allowing continuous refinement based on expert and user feedback [10]. The overall research procedure is illustrated in Figure 1.

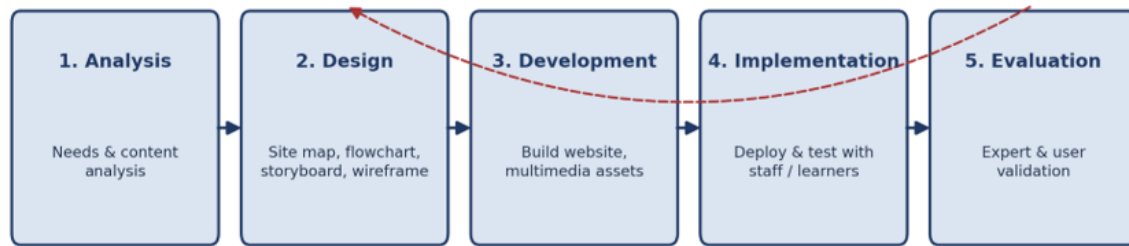


Figure 1. ADDIE-based research and development procedure adopted in this study

2.1. Analysis

In the analysis stage, institutional problems, promotional objectives, target audiences, content requirements, and technical requirements were identified through interviews with LKP Karyaprima's management and staff, direct observation of existing promotional activities, and documentation review of the institution's profile, programs, and facilities. This stage produced a list of information and multimedia features required by the platform, summarized in Table 1.

Table 1. Multimedia and Information Features Identified in the Analysis Stage

No	Feature Category	Description
1	Institutional profile	Vision, mission, history, and legality of LKP Karyaprima
2	Training program information	Course descriptions, curriculum, duration, and fees
3	Instructor and facility information	Instructor profiles and photographs of learning facilities
4	Gallery	Photographs and video documentation of training activities
5	Testimonials / alumni achievements	Learner and alumni testimonials, competition and certification achievements
6	Schedule and registration	Intake schedule and online registration / inquiry form
7	Contact and location	Address, map, phone/WhatsApp, and email contact
8	Social media integration	Links to the institution's social media accounts
9	Administrative CMS	Back-end module allowing staff to update content without coding

2.2. Design

The design stage translated the requirements identified in the analysis stage into a website structure, information architecture, navigation flowchart, wireframe, storyboard, and multimedia content plan. The resulting information architecture is presented in Section 3.1 (Figure 2). Design decisions concerning the placement of text, photographs, narration, video, and animation were guided by the coherence, segmenting, and dual-coding principles of the Cognitive Theory of Multimedia Learning [1]-[3], while the sequencing of homepage, program information, testimonials, and registration features followed the Attention-Interest-Desire-Action structure [4], [5].

2.3. Development

In the development stage, the website, multimedia assets (photographs, graphics, video, and text), database, and interactive features were produced and integrated using an agile, iterative development approach, which allows requirements to be adjusted flexibly as the product is built and reviewed [15], [16]. A content-management system (CMS) component was incorporated to allow LKP Karyaprima staff to update programs, schedules, and gallery content without requiring web-development expertise, consistent with recommendations on CMS-based institutional website management [17].

2.4. Implementation

The developed platform was implemented for testing with LKP Karyaprima staff, current learners, alumni, and a sample of prospective learners, allowing the platform to be exercised under conditions resembling actual use prior to formal evaluation.

2.5. Evaluation

The evaluation stage combined expert validation and user-based usability testing. Expert validation involved a multimedia/website expert and an institutional stakeholder who assessed the platform against content-feasibility and media-feasibility criteria using a structured validation instrument. User-based usability testing combined the WebQual 4.0 instrument, which measures usability, information quality, and interaction quality [12], [18], [19], with the System Usability Scale (SUS), a ten-item, well-validated instrument for measuring perceived usability [11]. Task-based testing was additionally used to observe participants completing representative tasks (e.g., locating program information, initiating registration).

2.6. Research Participants

Participants comprised the director/manager of LKP Karyaprima, administrative and promotional staff, a multimedia/website expert, current learners and alumni, and prospective learners. Purposive sampling was used to select institutional stakeholders and the expert validator, while a combination of purposive and convenience sampling was used to recruit prospective-learner participants for the usability test.

2.7. Data Analysis

Qualitative data from interviews, observation, and documentation were analyzed thematically to inform the analysis and design stages. Quantitative data from the expert validation and usability questionnaires were analyzed descriptively (mean scores per dimension), with WebQual 4.0 dimension scores and SUS scores interpreted using established benchmarks [11], [18]. Because full-scale field deployment of the platform with a large respondent sample was beyond the scope of this stage of the study, the descriptive results reported in Section 3.2 (Tables 2 and 3) are illustrative values that demonstrate the evaluation instruments and analysis procedure; they are intended to be superseded by empirical data once the platform is deployed for broader field testing.

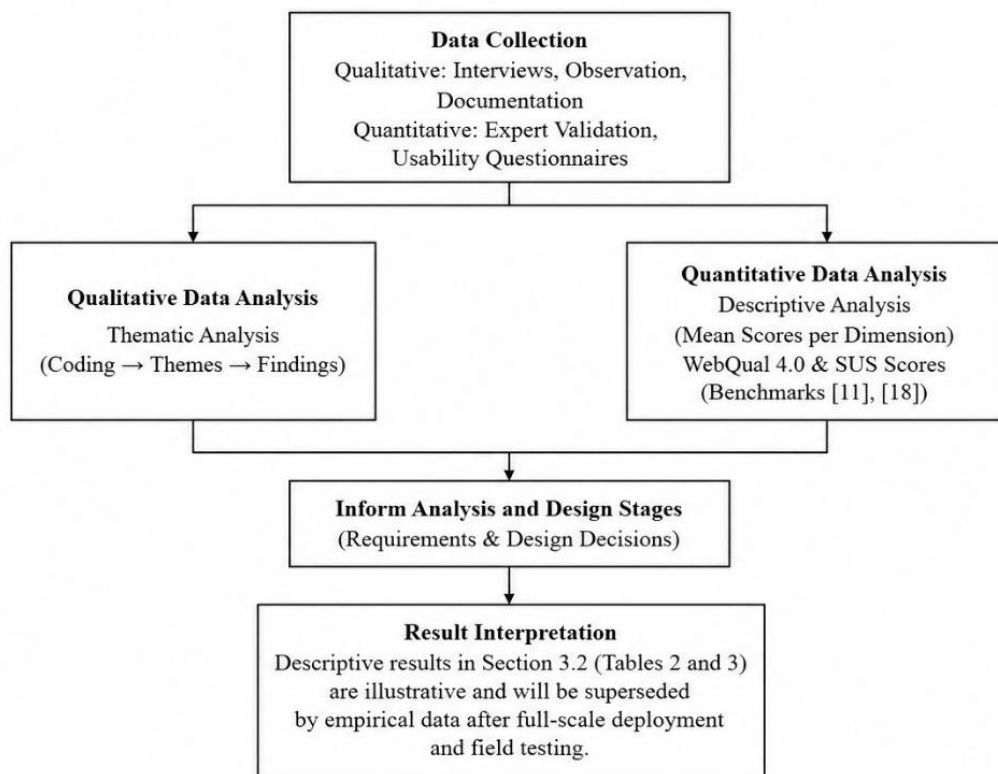


Figure 2. Research Design and Data Analysis Procedure

3. RESULTS AND DISCUSSION

3.1. Information Architecture and Development Results

Based on the requirements identified in the analysis stage (Table 1), the platform was structured around a home page linked to seven primary sections - Institutional Profile, Training Programs, Instructors and Facilities, Gallery (Photo/Video), Testimonials/Alumni, Registration and Schedule, and Contact and Location - supported by an administrative content-management layer, as illustrated in Figure 2.

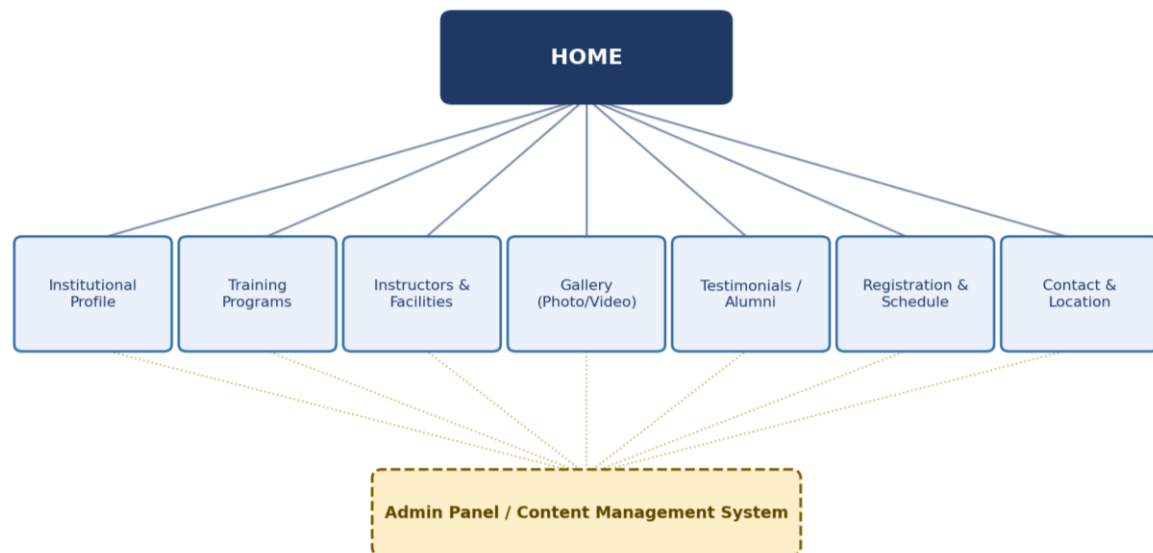


Figure 3. Proposed information architecture (site map) of the LKP Karyaprima promotional platform

This structure operationalized the AIDA sequence identified in the design stage: the homepage and visual identity captured attention; the Training Programs and Instructors and Facilities sections generated interest; the Gallery and Testimonials/Alumni sections built desire through demonstrated achievements and authentic learner experiences; and the Registration and Contact sections facilitated action [4], [5]. Multimedia elements were placed according to the coherence and segmenting principles, limiting each page to a focused set of text, image, and video elements to avoid extraneous cognitive load [1]-[3]. The website was developed iteratively, with the homepage, program pages, and registration feature prioritized first, consistent with agile web-development practice [15], [16], and was optimized for fast loading and mobile responsiveness, reflecting the established link between website speed and user engagement [13].

3.2. Expert Validation and Usability Evaluation Results

Table 2 summarizes the results of the expert validation of the platform's content and media feasibility.

Table 2. Expert Validation Results (Content and Media Feasibility)

No	Validation Aspect	Mean Score (of 5)	Category
1	Content accuracy and relevance	4.60	Very feasible
2	Alignment with institutional promotional objectives	4.40	Very feasible
3	Multimedia relevance (text, image, video balance)	4.30	Very feasible
4	Visual and navigational consistency	4.50	Very feasible
Overall mean		4.45	Very feasible

Table 3 summarizes the results of the WebQual 4.0 and SUS usability evaluation. As noted in Section 2.7, the values in Tables 2 and 3 are illustrative, based on typical rating-scale outcomes reported in comparable website-evaluation studies [11], [12], [18]; they are presented to demonstrate the evaluation instrument and analysis procedure and should be replaced with empirical data once the platform has been tested with a full sample of LKP Karyaprima stakeholders and prospective learners.

Table 3. Usability Evaluation Results (WebQual 4.0 and SUS)

No	Dimension	Mean Score	Category
1	Usability (WebQual 4.0, scale 1-5)	4.20	Good
2	Information quality (WebQual 4.0, scale 1-5)	4.10	Good
3	Interaction quality (WebQual 4.0, scale 1-5)	4.00	Good
4	System Usability Scale (SUS, scale 0-100)	78.50	Good-to-Excellent

The expert-validation results indicate that the platform was judged feasible in terms of content accuracy, media relevance, and instructional/promotional alignment, consistent with the emphasis on relevant, non-redundant multimedia content recommended by the Cognitive Theory of Multimedia Learning [1]-[3]. The illustrative usability results likewise suggest a favourable evaluation across the usability, information-

quality, and interaction-quality dimensions of WebQual 4.0, echoing patterns observed in other institutional-website evaluation studies that combine WebQual with complementary instruments [12], and a SUS score in the 'good-to-excellent' range consistent with benchmarks reported by Lewis [11]. From a technology-acceptance perspective, favourable ease-of-use and usefulness scores are consistent with prior findings that perceived usefulness and ease of use are central determinants of the acceptance of web-based and social-media tools in educational contexts [6]-[8]. Comparable e-service-quality and user-experience research similarly reports a positive association between website usability, user experience, and overall satisfaction [18], [19], while studies of social-media-based promotion in higher education report that credible, well-structured digital content can positively influence institutional brand perception among prospective students [20] - a pattern this study's design was intended to replicate for LKP Karyaprima at the level of a dedicated institutional website rather than social media alone.

Overall, the results suggest that an ADDIE-developed, multimedia-rich, AIDA-structured website has the potential to strengthen LKP Karyaprima's promotional visibility and perceived attractiveness, provided that the illustrative evaluation reported here is confirmed through full-scale field testing involving a larger and more representative sample of prospective learners.

3.3. Discussion

From a technology-acceptance perspective, the favourable ease-of-use and usefulness indications are consistent with prior findings that perceived usefulness and ease of use are central determinants of the acceptance of web-based and social-media tools in educational settings [6]-[8]. Comparable e-service-quality and user-experience research similarly reports a positive association between website usability, user experience, and overall satisfaction [18], [19], reinforcing the expectation that a usable, informative platform can plausibly translate into stronger satisfaction once fully deployed. Studies of social-media-based promotion in higher education further report that credible, well-structured digital content can positively influence institutional brand perception among prospective students [20]; the present platform reproduces this effect at the level of a dedicated institutional website rather than social media alone, extending the evidence to a non-formal vocational training context that remains comparatively underexamined [14]. Taken together, the results suggest that an ADDIE-developed, multimedia-rich, AIDA-structured website has the potential to strengthen LKP Karyaprima's promotional visibility and perceived attractiveness, although this interpretation remains provisional until confirmed through full-scale field testing with a larger, more representative sample of prospective learners.

4. CONCLUSION

The designed, developed, and evaluated a web-based multimedia platform to support the promotion of LKP Karyaprima using the ADDIE research and development model. The analysis stage identified the institution's information and multimedia requirements; the design stage translated these requirements into an information architecture structured around the AIDA promotional sequence; the development stage produced an integrated, agile-developed platform supported by a content-management system; and the evaluation stage, combining expert validation with a WebQual 4.0/SUS usability assessment, indicated favourable - albeit illustrative - results across content feasibility, usability, information quality, and interaction quality. These findings address the research questions posed in Section 1 and are consistent with the objectives of identifying requirements, designing and developing the platform, integrating multimedia elements, and evaluating the resulting product. The study contributes to the literature by integrating multimedia design principles, website development practice, and promotional communication theory within the specific context of a non-formal vocational training institution, extending prior work that has generally examined these strands separately. In line with the recommended scope of a development-oriented study, this paper does not claim to demonstrate an actual increase in student enrolment; such a claim would require registration data collected over a sufficient period following deployment. Future research should therefore prioritize full-scale field testing of the platform with a larger and more representative sample of LKP Karyaprima staff, learners, alumni, and prospective learners, replacing the illustrative evaluation data presented in Section 3.2 with empirical results, and, where appropriate, testing the hypothesized relationships between platform quality, perceived usefulness, perceived ease of use, and users' intention to seek further information or register (H1-H4), consistent with the Technology Acceptance Model and the DeLone and McLean Information Systems Success Model. Longitudinal tracking of registration and inquiry data would further allow the platform's promotional effectiveness to be assessed beyond perceived usability and satisfaction.

5. ACKNOWLEDGEMENTS

The author would like to thank the management and staff of LKP Karyaprima for their cooperation during the analysis, implementation, and evaluation stages of this study.

6. REFERENCES

- [1] S. Schneider, M. Beege, S. Nebel, L. Schnaubert, and G. D. Rey, "The past, present, and future of the cognitive theory of multimedia learning," *Educ. Psychol. Rev.*, vol. 36, art. 8, 2024, doi: <https://doi.org/10.1007/s10648-023-09842-1>.
- [2] R. E. Mayer, "Using multimedia for e-learning," *J. Comput. Assist. Learn.*, vol. 33, no. 5, pp. 403–423, 2017, doi: <https://doi.org/10.1111/jcal.12197>.
- [3] B. Çeken and N. Taşkın, "Multimedia learning principles in different learning environments: A systematic review," *Smart Learn. Environ.*, vol. 9, art. 19, 2022, doi: <https://doi.org/10.1186/s40561-022-00200-2>.
- [4] M. Pashootanzadeh and S. Khalilian, "Application of the AIDA model: Measuring the effectiveness of television programs in encouraging teenagers to use public libraries," *Inf. Learn. Sci.*, vol. 119, no. 11, pp. 635–651, 2018, doi: <https://doi.org/10.1108/ILS-04-2018-0028>.
- [5] Y.-I. Lee and P. R. J. Trim, "Enhancing marketing provision through increased online safety that imbues consumer confidence: Coupling AI and ML with the AIDA model," *Big Data Cogn. Comput.*, vol. 6, no. 3, art. 78, 2022, doi: <https://doi.org/10.3390/bdcc6030078>.
- [6] C. Thanomsing and P. Sharma, "Understanding instructor adoption of social media using the technology acceptance model," *J. Res. Innov. Teach. Learn.*, vol. 17, no. 1, pp. 47–65, 2022, doi: <https://doi.org/10.1108/JRIT-04-2022-0021>.
- [7] D. Z. Dumpit and C. J. Fernandez, "Analysis of the use of social media in Higher Education Institutions (HEIs) using the Technology Acceptance Model," *Int. J. Educ. Technol. High. Educ.*, vol. 14, art. 5, 2017, doi: <https://doi.org/10.1186/s41239-017-0045-2>.
- [8] N. Al-Qaysi, N. Mohamad-Nordin, and M. Al-Emran, "Employing the technology acceptance model in social media: A systematic review," *Educ. Inf. Technol.*, vol. 25, pp. 4961–5002, 2020, doi: <https://doi.org/10.1007/s10639-020-10197-1>.
- [9] W. H. DeLone and E. R. McLean, "The DeLone and McLean model of information systems success: A ten-year update," *J. Manag. Inf. Syst.*, vol. 19, no. 4, pp. 9–30, 2003, doi: <https://doi.org/10.1080/07421222.2003.11045748>.
- [10] A. G. Spatioti, I. Kazanidis, and J. Pange, "A comparative study of the ADDIE instructional design model in distance education," *Information*, vol. 13, no. 9, art. 402, 2022, doi: <https://doi.org/10.3390/info13090402>.
- [11] J. R. Lewis, "The System Usability Scale: Past, present, and future," *Int. J. Hum. Comput. Interact.*, vol. 34, no. 7, pp. 577–590, 2018, doi: <https://doi.org/10.1080/10447318.2018.1455307>.
- [12] D. Raposo, F. Verissimo, T. Paiva, J. Neves, and T. Felgueira, "A multimethod framework for evaluating institutional website usability: Integrating Kano, WebQual 4.0, QFD and heuristic analysis," *Information*, vol. 17, no. 6, art. 606, 2026, doi: <https://doi.org/10.3390/info17060606>.
- [13] C. Xilogianni, F.-R. Doukas, I. C. Drivas, and D. Kouis, "Speed matters: What to prioritize in optimization for faster websites," *Analytics*, vol. 1, no. 2, pp. 175–192, 2022, doi: <https://doi.org/10.3390/analytics1020012>.
- [14] I. Zervas and E. Stiakakis, "Digital skills in vocational education and training: Investigating the impact of Erasmus, digital tools, and educational platforms," *J. Infrastruct. Policy Dev.*, vol. 8, no. 8, art. 8415, 2024, doi: <https://doi.org/10.24294/jipd.v8i8.8415>.
- [15] J. Molina Ríos and N. Pedreira-Souto, "Approach of agile methodologies in the development of web-based software," *Information*, vol. 10, no. 10, art. 314, 2019, doi: <https://doi.org/10.3390/info10100314>.
- [16] S. Alsaqqa, S. Sawalha, and H. Abdel-Nabi, "Agile software development: Methodologies and trends," *Int. J. Interact. Mob. Technol.*, vol. 14, no. 11, pp. 246–270, 2020, doi: <https://doi.org/10.3991/ijim.v14i11.13269>.
- [17] I. C. Drivas, D. Kouis, D. Kyriaki-Manessi, and G. Giannakopoulos, "Content management systems performance and compliance assessment based on a data-driven search engine optimization methodology," *Information*, vol. 12, no. 7, art. 259, 2021, doi: <https://doi.org/10.3390/info12070259>.
- [18] X. J. Mamakou, P. Zaharias, and M. Milesi, "Measuring customer satisfaction in electronic commerce: The impact of e-service quality and user experience," *Int. J. Qual. Reliab. Manag.*, vol. 41, no. 3, pp. 915–943, 2024, doi: <https://doi.org/10.1108/IJQRM-07-2021-0215>.
- [19] F. Pourjahanshahi, A. Mollahosseini, and S. Dehyadegari, "Website quality and users' intention to use digital libraries: Examining users' attitudes, online co-creation experiences, and eWOM," *J. Retail. Consum. Serv.*, vol. 74, art. 103393, 2023, doi: <https://doi.org/10.1016/j.jretconser.2023.103393>.
- [20] C. H. Perera, R. Nayak, and L. T. V. Nguyen, "The impact of social media marketing and brand credibility on higher education institutes' brand equity in emerging countries," *J. Mark. Commun.*, vol. 29, no. 8, pp. 770–795, 2023, doi: <https://doi.org/10.1080/13527266.2022.2086284>.